

Wyoming Resource Concerns and Quality Criteria				
Resource Concern	Description of Concern	Quality Criteria	Measurement Units	Assessment Tools
<b>SOIL</b>				
<b>Soil Erosion - Sheet and Rill</b>	Detachment and transport of soil particles caused by rainfall splash and runoff degrade soil quality.	<u>National</u> - Sheet and rill erosion does not exceed the Soil Loss Tolerance "T".	Tons/Acre/Year – average annual tons of erosion reduced per acre for the field or planning area/unit	<ul style="list-style-type: none"> <li>Current water erosion prediction tool</li> </ul>
<b>Soil Erosion - Wind</b>	Detachment and transport of soil particles caused by wind degrade soil quality and/or damage plants.	<u>National</u> - Wind erosion does not exceed the Soil Loss Tolerance "T" or, for plant damage, does not exceed Crop Damage Tolerances.	Tons/Acre/Year – average annual tons of erosion reduced per acre for the field or planning area/unit	<ul style="list-style-type: none"> <li>Current wind erosion prediction tool</li> </ul>
<b>Soil Erosion - Ephemeral Gully</b>	Small channels caused by surface water runoff degrade soil quality and tend to increase in size. On cropland, they can be obscured by heavy tillage.	<u>National</u> - Surface water runoff is controlled sufficiently to stabilize the small channels and prevent reoccurrence of new channels.	Tons/Year – average annual tons of erosion reduced for the field or planning area/unit	<ul style="list-style-type: none"> <li>Extent/Volume calculation</li> <li>Visual observation</li> </ul>
<b>Soil Erosion - Classic Gully</b>	Deep, permanent channels caused by the convergence of surface runoff degrade soil quality. They enlarge progressively by headcutting and lateral widening.	<u>National</u> - Surface water runoff is controlled sufficiently to stop progression of headcutting and widening.	Tons/Year – average annual tons of erosion reduced for the field or planning area/unit	<ul style="list-style-type: none"> <li>Extent/Volume calculation</li> <li>Aerial photo trend analysis</li> <li>Visual observation</li> </ul>
<b>Soil Erosion - Streambank</b>	Accelerated loss of streambank soils restricts land and water use and management.	<u>National</u> - Accelerated streambank soil loss does not exceed a level commensurate with upstream land use and normal geomorphological processes on site. <u>Wyoming</u> - Assessment tool shows condition of stream is in proper functioning condition or if off-site conditions cause the stream to not be in proper functioning condition, the landowner is not contributing to the problem.	Tons/Year – average annual tons of erosion reduced for the field or planning area/unit	<ul style="list-style-type: none"> <li>Stream assessment tool, i.e. Stream Visual Assessment Protocol, Proper Functioning Condition (PFC)</li> <li>Visual observation</li> </ul>

Wyoming Resource Concerns and Quality Criteria				
Resource Concern	Description of Concern	Quality Criteria	Measurement Units	Assessment Tools
<b>SOIL</b>				
<b>Soil Erosion - Shoreline</b>	Soil is eroded along shorelines by wind and wave action, causing physical damage to vegetation, limiting land use, or creating a safety hazard.	National - Shoreline erosion is stabilized to a level that does not restrict the use or management of adjacent land, water or structures.	Tons/Year – average annual tons of erosion reduced for the field or planning area/unit	<ul style="list-style-type: none"> <li>Extent/Volume calculation</li> <li>Visual observation</li> </ul>
<b>Soil Erosion - Irrigation-induced</b>	Improper irrigation water application and equipment operation are causing soil erosion that degrades soil quality.	<u>National</u> - Irrigation-induced erosion does not exceed the Soil Loss Tolerance "T". <u>Wyoming</u> - Sprinkler application rates and furrow irrigation flow rates are within values recommended in the National Irrigation Guide.	Tons/Acre/Year – average annual tons of erosion reduced per acre for the field or planning area/unit	<ul style="list-style-type: none"> <li>National Irrigation Guides</li> </ul>
<b>Soil Erosion - Road, road sides and Construction Sites</b>	Soil loss occurs on areas left unprotected during or after road building and/or construction activities.	National - Sites are adequately protected from soil loss during and after road building and construction activities.	Tons/Year – average annual tons of erosion reduced for the field or planning area/unit	<ul style="list-style-type: none"> <li>Current erosion prediction tools</li> </ul>
<b>Soil Condition - Organic Matter Depletion</b>	Soil organic matter has or will diminish to a level that degrades soil quality.	<u>National</u> - Soil Conditioning Index is positive.	Soil Conditioning Index improvement – positive improvement in index for the field or planning area/unit	<ul style="list-style-type: none"> <li>Soil Conditioning Index</li> </ul>
<b>Soil Condition - Compaction</b>	Compressed soil particles and aggregates caused by mechanical compaction adversely affect plant-soil-moisture relationships.	<u>National</u> - Mechanically compacted soils are renovated sufficiently to restore plant root growth and/or water movement.	Non Measurable	<ul style="list-style-type: none"> <li>Bulk density test-Soil Quality Kit</li> <li>On-site examination</li> </ul>
<b>Soil Condition -Contaminants Salts and Other Chemicals</b>	Inorganic chemical elements and compounds such as salts, selenium, boron, and heavy metals restrict the desired use of the soil or exceed the soil buffering capacity	National - Salinity levels cause less than a 10% decrease in plant yield. Other contaminants do not exceed plant tolerances or are below toxic levels for plants or animals.	Electroconductivity (EC) – average reduction in EC for the field or planning area/unit	<ul style="list-style-type: none"> <li>Soil test</li> <li>Soil Quality Kit- EC meter</li> </ul>

Wyoming Resource Concerns and Quality Criteria				
Resource Concern	Description of Concern	Quality Criteria	Measurement Units	Assessment Tools
<b>SOIL</b>				
<b>Soil Condition -Contaminants Animal Waste and Other Organics - N</b>	Nitrogen nutrient levels from applied animal waste and other organics restrict desired use of the land.	<u>National</u> – Nitrogen nutrient application levels do not exceed soil storage/plant uptake capacities based on soil test recommendations and risk analysis results.	Pounds/Acre/Year – average annual pounds of nitrogen (N) reduced per acre for the field or planning area/unit	<ul style="list-style-type: none"> <li>• Soil test</li> <li>• Phosphorus Index</li> <li>• Application records</li> <li>• Yield records/history</li> <li>• University of Wyoming Nitrogen Recommendations</li> </ul>
<b>Soil Condition -Contaminants Animal Waste and Other Organics – P</b>	Phosphorus nutrient levels from applied animal waste and other organics restrict desired use of the land.	<u>National</u> - Phosphorus nutrient application levels do not exceed soil storage/plant uptake capacities based on soil test recommendations and risk analysis results.	Pounds/Acre/Year – average annual pounds of phosphorus (P) reduced per acre for the field or planning area/unit	<ul style="list-style-type: none"> <li>• Soil test</li> <li>• Phosphorus Index</li> <li>• Application records</li> <li>• Yield records/history</li> </ul>
<b>Soil Condition -Contaminants Animal Waste and Other Organics – K</b>	Potassium nutrient levels from applied animal waste and other organics restrict desired use of the land.	<u>National</u> - Potassium nutrient application levels do not exceed soil storage/plant uptake capacities based on soil test recommendations and risk analysis results.	Pounds/Acre/Year – average annual pounds of potassium (K) reduced per acre for the field or planning area/unit	<ul style="list-style-type: none"> <li>• Soil Test</li> <li>• Application records</li> <li>• Yield records/history</li> </ul>
<b>Soil Condition -Contaminants Commercial Fertilizer - N</b>	Over application of nitrogen degrades plant health and vigor, or exceeds the soil capacity to retain nutrients.	<u>National</u> - Soil nutrient levels of nitrogen do not exceed crop needs based on realistic yield goals and appropriate pH levels are maintained.	Pounds/Acre/Year – average annual pounds of nitrogen (N) reduced per acre for the field or planning area/unit	<ul style="list-style-type: none"> <li>• Soil Test</li> <li>• Phosphorus Index</li> <li>• Application records</li> <li>• Yield records/history</li> <li>• University of Wyoming Nitrogen Recommendations</li> </ul>
<b>Soil Condition -Contaminants Commercial Fertilizer – P</b>	Over application of phosphorus degrades plant health and vigor or exceeds the soil capacity to retain nutrients.	Soil nutrient levels of phosphorus do not exceed crop needs based on realistic yield goals and appropriate pH levels are maintained.	Pounds/Acre/Year – average annual pounds of phosphorus (P) reduced per acre for the field or planning area/unit	<ul style="list-style-type: none"> <li>• Soil Test</li> <li>• Phosphorus Index</li> <li>• Application records</li> <li>• Yield records/history</li> </ul>
<b>Soil Condition -Contaminants Commercial Fertilizer – K</b>	Over application of potassium degrades plant health and vigor or exceeds the soil capacity to retain nutrients.	Soil nutrient levels of potassium do not exceed crop needs based on realistic yield goals and appropriate pH levels are maintained.	Pounds/Acre/Year – average annual pounds of potassium (K) reduced per acre for the field or planning area/unit	<ul style="list-style-type: none"> <li>• Soil Test</li> <li>• Application records</li> <li>• Yield records/history</li> </ul>

Wyoming Resource Concerns and Quality Criteria				
Resource Concern	Description of Concern	Quality Criteria	Measurement Units	Assessment Tools
SOIL				
<b>Soil Condition -Contaminants Residual Pesticides</b>	Residual pesticides in the soil have an adverse effect on non-target plants and animals.	National - Pesticides are applied, stored, handled, and disposed of so that residues in the soil do not adversely affect non-target plants and animals. <u>Wyoming</u> - Pesticides are applied, stored, handled, disposed of and managed according to label requirements.	Non Measurable	<ul style="list-style-type: none"> <li>Pesticide application records</li> <li>Visual assessment</li> </ul>
<b>Soil Condition - Damage from Sediment Deposition</b>	Sediment deposition damages or restricts land use/management or adversely affects ecological processes.	<u>National</u> - Sediment deposition is sufficiently reduced to maintain desired land use/management and ecological processes.	Acres/Year – average annual acres of sediment deposition reduced for the field or planning area/unit	<ul style="list-style-type: none"> <li>Surface area measurement</li> </ul>
<b>Soil Condition Rangeland Site Stability</b>	The capacity to limit redistribution and loss of soil resources (including nutrients and organic matter) by wind and water.	National - Indicators of Rangeland Health Attribute rating for Soil/Site Stability show Slight to Moderate or less departure from Ecological Reference Sheet (ESD).	Departure from Ecological Reference Sheet (ESD) categories – amount of departure, by numeric value, from Ecological Reference Sheet for the field or planning area/unit. 1=None to Slight, 2=Slight to Moderate, 3=Moderate, 4=Moderate to Extreme, or 5=Extreme.	<ul style="list-style-type: none"> <li>Rangeland Health Assessment</li> </ul>